DEVELOP TIME DISTRIBUTION PATTERN OF DESIGN RAINFALL IN SELANGOR

By

MOHD NASHARUDDIN BIN PUTEH

Report is submitted as
the requirement for the degree of
Bachelor Engineering (Hons) (Civil)

UNIVERSITI TEKNOLOGI MARA
APRIL 2007

DECLARATION BY THE CANDIDATE

I Mohd. Nasharuddin b. Puteh, 2004347462, confirm that the work is my own and that appropriate credit has been given where reference has been made to the work of others.

Signature: _____

DECLARATION BY THE SUPERVISOR

I confirm that I have read and checked this report and to my opinion the report is suitable in terms of scope and quality required for awarding the Bachelor of Civil Engineering (Hons).

Signature: _____

Name of the supervisor: KUAN WOEI KEONG

Date: 11/5/07

ACKNOWLEDGEMENT

Throughout the preparation of this thesis, I have been guided by the expertise of many people along my way. Mr. Kuan Woei Keong, who is my thesis supervisor, has been very helpful in my thesis writing process. He has always been enthusiastic in checking my work for accuracy, assisting me with problems and offering numerous suggestions for my own improvement. I really appreciate Mr. Kuan for his patient guidance, advices and giving me such a wonderful opportunity to gain more knowledge. In addition, I am indebted to Puan Norhayati Bte Fadzil from the Department of Drainage and Irrigation (DID) Ampang Selangor for giving me the data for the selected area and the information to accomplish the research.

I would also like to acknowledge my course mates and the rest of my friends, for their encouragement, motivation and assistance in everything. At last, I thank my wonderful family for continuing to support and understand my commitment towards this thesis writing. Without the help of such cooperative efforts, this thesis would not have been the same as presented here.

"THANKS FOR EVERYTHING"

TABLE OF CONTENT

			PAGE
ACKNOWLEDGEMENT			i
TABLE OF CONTENT			ii
LIST OF FIGURE			v
LIST OF TABLE			vii
ABSTRACT			viii
CHAPTER			
1	**INTRODUCTION**		1
	1.1	General	1
	1.2	Problem Statements	3
	1.3	Objective	6
	1.4	Scope of Study	6
2	**LITERATURE REVIEW**		7
	2.1	Hydrological Cycle	7
	2.2	Rainfall	8
	2.3	Rainfall Characteristic Studies and Its Importance	9
	2.4	The Runoff Cycle	9
	2.5	Rainfall-Runoff Process	12
	2.5	Factor Affecting Runoff	13
		2.5.1 Climate	13

	2.5.2 Physical Characteristic of Drainage Basin	14
2.6	Design Rainfall	15
	2.6.1 Rainfall Intensity	15
	2.6.2 Sources of Rainfall Data	16
2.7	Design Rainfall	15
	2.7.1 Rainfall Intensity	15
	2.7.2 Source of rainfall Data	16
2.8	Specification of Rainfall Data	16
	2.8.1 Frequency	17
	2.8.2 Duration and Depth	17
2.9	Design Rainfall Temporal Pattern	18
	2.9.1 Purpose	18
3	**METHODOLOGY**	20
3.1	Introduction	20
3.2	Flow Chart of Methodology	21
3.3	Data Collection	22
3.4	Description of Study Area	25
	3.4.1 Sungai Selangor Basin	25
3.5	Analysis of the Data	28
	3.5.1 Analysis Data Using the Microsoft Excel	28
3.6	Data Calculation	31
	3.6.1 Method of Average Variability	31